

## **Environment Agency permitting decisions**

### **Variation**

We have decided to issue the variation for Lag Farm Dairy operated by Yeo Valley Farms (Production) Limited.

The variation number is EPR/NP3532SU/V005.

We consider in reaching that decision we have taken into account all relevant considerations and legal requirements and that the permit will ensure that the appropriate level of environmental protection is provided.

### **Description of the changes introduced by the Variation**

This is a Substantial Variation.

The Lag Farm Dairy processes milk and milk powders to produce yogurt. The installation comprises a milk reception area, liquid ingredient tanks, Cleaning in Place (CIP) tanks, mix tanks, incubation tanks, a production hall, a cold store and despatch area. There is a kerosene fired boiler plant, refrigeration plant and an effluent treatment plant.

Current production is 1,600 tonnes per week. The operator wishes to increase production over the coming years to try to capture further market share with a view to increasing profitability. This will be by 300 tonnes per week in February 2016, with further annual increases of 200 tonnes per week to a maximum total of 3,200 tonnes per week. This will be achieved by increased production throughput via existing processes with additional packing machines and incubation tanks.

Whilst the operator can demonstrate that their operational techniques are designed to ensure resource, water, energy and waste efficiency, there will be an increase in the total volume of process effluent generated, which will exceed the currently permitted limit of 500 m<sup>3</sup>/day. The volume of effluent will rise incrementally as production levels increase, to a maximum of 960 m<sup>3</sup>/day. This will receive treatment at the on-site effluent treatment plant (ETP) prior to discharge to surface waters. The operator has invested in improvements to their ETP to ensure that there is capacity for this increased volume of effluent. The impact on the receiving waters is the main concern arising from the proposed increase in production.

## **Purpose of this document**

This decision document:

- explains how the application has been determined
- provides a record of the decision-making process
- shows how all relevant factors have been taken into account
- justifies the specific conditions in the permit other than those in our generic permit template.

Unless the decision document specifies otherwise we have accepted the applicant's proposals.

## **Structure of this document**

- Key issues
- Annex 1 the decision checklist
- Annex 2 the consultation and web publicising responses

## Key issues of the decision

### Assessment of emissions to water

As a result of the increase in production at the installation there will be an increase in the total volume of process effluent generated, which will exceed the currently permitted limit of 500 m<sup>3</sup>/day. The volume of effluent will rise incrementally as production levels increase, to a maximum of 960 m<sup>3</sup>/day.

	Production level tonnes per week	Effluent discharge m <sup>3</sup> per day	Effluent discharge with targeted reduction m <sup>3</sup> per day
Sep 2015	1600	480	480
Feb 2016	1900	570	562
Jan 2017	2200	660	641
Jan 2018	2400	720	690
Jan 2019	2600	780	736
Jan 2020	2800	840	782
Jan 2021	3000	900	826
Jan 2022	3200	960	868

This process effluent will receive treatment at the on-site effluent treatment plant (ETP) prior to discharge to surface waters. The operator has invested in improvements to their ETP to ensure that there is capacity for this increased volume of effluent with the installation of the following:

- 450m<sup>3</sup> raw effluent balancing tank.
- 40m<sup>3</sup>/hour DAF plant.
- Stainless steel sludge holding tank incorporating manual decant for sludge thickening.
- A larger clarifier to aid settlement and a larger coagulant holding tank.

The discharge from the installation is made via Wessex Water's final effluent disposal main (FEDM), which also serves their sewage treatment works at Ubley and Blagdon. The receiving watercourse, the River Congresbury Yeo, is heavily modified and only receives a compensation flow from Blagdon Reservoir. This flow immediately passes through Bristol Water's online fish farm before receiving the discharge from the FEDM. These discharges account for a large proportion of the river water and as such the river is in a stressed state and is currently failing the standards under the Water Framework Directive (WFD).

We are working in partnership with Wessex Water, Bristol Water and Yeo Valley to undertake a study to understand the complex nature of the pollution issues on the Congresbury Yeo below Blagdon Lake. The 'Blagdon Study' will enable us to propose the best way forward to secure the desired environmental outcomes and where possible to support sustainable business growth. This will determine the future regulation of the discharges and asset improvements required. It is due to report in 2017 and we will need to review the emission limit values in the Lag Farm Dairy permit as part of our actions following completion of the study.

In the meantime, we must address Yeo Valley's proposals to increase their discharge volume in 2016. Due to the sensitive nature of the receiving watercourse, as part of the pre-application discussions for Lag Farm Dairy we modelled the impacts from the increased discharge proposal in order to provide indicative limits to the applicant.

<b>Parameter (unit)</b>	<b>Current limit</b>	<b>Proposed limit</b>
Daily volume (m <sup>3</sup> /d)	500	960
BOD (mg/l)	15	15
Suspended Solids (mg/l)	20	30
Ammonia (mg/l)	5	2
Phosphate (mg/l)	No limit set	1

We believed these limits could be achieved and that it was unlikely these limits could be eased without this leading to further deterioration of water quality. However, the applicant raised concerns about their ability to meet the new tighter standards as absolute limits, particularly for ammonia and phosphate. They requested consideration of percentile limits, which we were willing to investigate due to the specific circumstances currently surrounding the discharge at this location.

We have now used all of the data provided in the application to complete a comprehensive assessment of the impacts of the full proposed increase in discharge from the installation. The modelling has looked at the standards required to achieve various scenarios including: a maintenance of the current pollutant load; no deterioration in the receiving watercourse; up to 10% deterioration in the receiving watercourse; meeting 'high' status under the WFD; and meeting 'good' status under the WFD. The outcomes of this have been compared with the expected performance of the ETP, with the strictest achievable standards then being selected for each parameter:

<b>Parameter</b>	<b>Proposed limit</b>
Daily volume	960 m <sup>3</sup> /d
BOD	10 mg/l
Suspended Solids	20 mg/l
Ammoniacal nitrogen (as N)	2 mg/l as a 95%ile AND 5 mg/l as an upper tier (absolute limit)
Orthophosphate	1 mg/l as an annual average

These limits will cause more than 10% deterioration of the upstream water quality but will protect the potential for the River Congresbury Yeo to meet at least 'good' status under the WFD. The limits are tighter than those noted in the reference document for the Best Available Techniques in the Food, Drink and Milk Industries. They will be subject to review following the findings of the Blagdon Study and may be updated accordingly.

The orthophosphate limit has been rounded up to 1 mg/l. We expect that the operator will need to undertake further work on minimising levels of phosphates in their discharge (as identified in the MSA review of the effluent plant, submitted as part of the application) and will include an improvement condition to address this. We consider it appropriate to set the phosphate limit as an annual average (rather than an absolute limit) because the build up of nutrients causing eutrophication is a long term problem rather than something that has an instantaneous impact.

### **Pipe capacity in Wessex Water's final effluent disposal main (FEDM)**

Wessex Water (WW) responded to our consultation with concerns about the increase in discharge from Lag Farm Dairy into their FEDM. There is only a historic arrangement between WW and the operator regarding this discharge. No trade effluent consent currently exists, so we cannot establish what basic level of capacity has been deemed acceptable

There is limited hydraulic capacity in the FEDM and WW are concerned that additional flows will lead to an increased risk of surcharge and increased volumes of treated sewage effluent and storm lagoon discharges to Blagdon Reservoir from Ubley sewage treatment works (further upstream in the sewer catchment). This is of concern to us because Blagdon Reservoir is designated as a Site of Special Scientific Interest (SSSI) due to its diverse invertebrate fauna, wintering wildfowl and macrophyte assemblage.

We agree that assessment of the hydraulic capacity and risk of spills is necessary as part of our determination of this variation application. We are required to achieve a high level of protection of the environment taken as a whole. We have discussed this with WW and shared their response with the applicant. They are willing to work together to carry out the necessary assessment to meet our requirements. We required to applicant to address this with an item in a Schedule 5 Notice of request for more information:

*You must provide us with an assessment of the hydraulic capacity of the FEDM (carried out in conjunction with Wessex Water) and the environmental impacts from your proposed increased discharge volume. You may also wish to consider whether your first increase in production planned for February 2016 can be accepted by the FEDM without an increased risk of spills.*

From further communications with WW, we have established that they can accept the first increase in discharge from Lag Farm Dairy in February 2016 but will need to carry out engineering appraisal work to confirm the impact of these increasing flows and the capacity requirements going forwards. The appraisal work will require surveys and land entry requirements to install monitoring points and will take some time to complete and report. As such, due to the imminent need for the applicant to gain a variation to their discharge volume, we will vary the permit to reflect agreement to the first increase in effluent volume (to 570 m<sup>3</sup>/day), with additional work required to assess the capacity to accept further increases in the FEDM. This will be achieved by transferring the outstanding requirements from the Schedule 5

Notice to a Pre-Operational Condition in the permit. This will be linked to the limit on the total daily volume of discharge in Table S3.2.

WW also note that they need to review matters with Yeo Valley Farms Ltd and place the discharge arrangements under a Trade Effluent process and agreement.

## **Removal of aspects of the application**

### UV treatment

The application proposed the use of UV radiation in order to utilise the operator's final treated effluent for irrigation purposes on their farmland. As part of our duly making checks we asked for detail of the UV treatment standards and operating techniques. The applicant decided to withdraw their request to install UV treatment in order to simplify the variation and will address the permit requirements regarding irrigation if it becomes relevant in future.

### Reverse Osmosis concentrate

The application proposed the diversion of the RO concentrate from the effluent treatment plant to surface water. We requested additional information on the substances, concentrations and volume of concentrate in order to complete our assessment of the impacts of this change of disposal route. The applicant decided to exclude this proposal from their application because the flows are relatively low and it is not critical for them to divert the concentrate at this time.

### **Effluent spreading**

Permit variation EPR/NP3532SU/V002 introduced conditions outlining specific requirements and associated operational techniques for the spreading of treated dairy process effluent. The process effluent is authorised for spreading outside of the Installation boundary on farm grassland and Holt Farm and Lag Farm gardens for irrigation during dryer periods.

The operator has not yet fulfilled the pre-operational conditions related to the use of wastewater for the purposes of irrigation. If they wish to undertake this activity, a system to remove the domestic element of the site effluent from that which will be used for irrigation must be in place and an approved Wastewater Irrigation Management Plan must be in place.

## Annex 1: decision checklist

This document should be read in conjunction with the application, supporting information and permit/notice.

Aspect considered	Justification / Detail	Criteria met
<b>Receipt of submission</b>		
Confidential information	A claim for commercial or industrial confidentiality has not been made.	✓
Identifying confidential information	We have not identified information provided as part of the application that we consider to be confidential. The decision was taken in accordance with our guidance on commercial confidentiality.	✓
<b>Consultation</b>		
Scope of consultation	<p>The consultation requirements were identified and implemented. The decision was taken in accordance with RGN 6 High Profile Sites, our Public Participation Statement and our Working Together Agreements.</p> <p>For this application we consulted the following bodies:</p> <ul style="list-style-type: none"> <li>• North Somerset Council Environmental Protection</li> <li>• Health &amp; Safety Executive</li> <li>• Bristol City Council Planning Department</li> <li>• Wessex Water</li> </ul>	✓
Responses to consultation and web publicising	<p>The web publicising and consultation responses (Annex 2) were taken into account in the decision.</p> <p>The decision was taken in accordance with our guidance.</p>	✓
<b>European Directives</b>		
Applicable directives	All applicable European directives have been considered in the determination of the application.	✓
<b>The site</b>		
Extent of the site of the facility	<p>The operator has provided plans which we consider are satisfactory, showing the extent of the site of the facility including discharge points.</p> <p>A plan is included in the permit and the operator is required to carry on the permitted activities within the site boundary.</p>	✓

Aspect considered	Justification / Detail	Criteria met
		Yes
Biodiversity, Heritage, Landscape and Nature Conservation	<p>The application is within the relevant distance criteria of a site of heritage, landscape or nature conservation, and/or protected species or habitat:</p> <ul style="list-style-type: none"> <li>- Mendip Limestone Grasslands SAC</li> <li>- North Somerset and Mendip Bats SAC</li> <li>- Mendip Woodlands SAC</li> <li>- Chew Valley Lake SPA</li> <li>- Blagdon Lake SSSI</li> <li>- Various Local Wildlife Sites and Ancient Woodlands</li> </ul> <p>No detailed assessment of the effect of the releases from the installation's combustion processes on SACs, SPAs and Ramsar sites is required. They are not considered 'relevant' for assessment due to the low size of the combustion plant (&lt;5MW<sub>th</sub> of boilers in use). There is a SSSI and a number of local wildlife sites and ancient woodlands within 2km of the installation however it is not considered that the boilers will have an effect on these sites.</p> <p>Surface waters are released to Blagdon Lake SSSI via a ditch but this consists of clean uncontaminated water only. Process effluent is directed to the River Congresbury Yeo via Wessex Water's FEDM. The process effluent is not in hydraulic continuity with Blagdon Lake SSSI. We have included a pre-operational condition to ensure that there is no greater risk of sewage spills from further up the FEDM to Blagdon Lake SSSI (see pipe capacity section in 'Key Issues'). No other SACs, SPAs, Ramsar sites, SSSIs, local wildlife sites, protected habitat or protected species have been found within the relevant downstream screening distances.</p> <p>An assessment of the application and its potential to affect the sites has been carried out as part of the permitting process. We consider that the application will not affect the features of the sites.</p> <p>We have not formally consulted on the application. The decision was taken in accordance with our guidance.</p>	✓

Aspect considered	Justification / Detail	Criteria met
		Yes
<b>Environmental Risk Assessment and operating techniques</b>		
Environmental risk	<p>We have reviewed the operator's assessment of the environmental risk from the facility.</p> <p>The operator's risk assessment is unsatisfactory and required additional Environment Agency assessment to make up the shortfall. We carried out detailed modelling of the impact on the receiving watercourse to determine the emission limit values necessary for the final treated effluent. See 'Key Issues' for the outcomes of this assessment.</p>	✓
Operating techniques	<p>We have reviewed the techniques used by the operator and compared these with the relevant guidance notes. The application notes the Indicative BAT from EPR 6.13 for the Dairy and Milk Processing Sector, including:</p> <ul style="list-style-type: none"> <li>- efficient use of raw materials and water;</li> <li>- accident management;</li> <li>- avoidance, recovery and disposal of wastes;</li> <li>- pasteurisation, sterilisation and UHT;</li> <li>- cooling, chilling and freezing;</li> <li>- energy efficiency and</li> <li>- cleaning in place.</li> </ul> <p>The applicant has confirmed that they are compliant with BAT detailed in EPR 6.13 and Chapter 5 of the reference document for the Best Available Techniques in the Food, Drink and Milk Industries. As such, these documents are referenced from the Operating Techniques table in the permit.</p> <p><b>Odour</b></p> <p>We consider that the activities carried out at the installation have the potential to cause odour but that such odour is unlikely to escape beyond the installation boundary. The remote location of the site also reduces any risk of pollution at sensitive receptors. The proposals in respect of odour control continue to represent BAT. We do not consider it necessary to require an odour management plan for the installation but will have the provision to do so if necessary under the standard permit condition for odour.</p>	✓

Aspect considered	Justification / Detail	Criteria met Yes																
	<p><b>Noise</b> On consideration of the application and previous knowledge of the operation of the installation, we consider that the activities carried out at the installation have the potential to cause noise, but that such noise is unlikely to progress significantly beyond the installation boundary and the proposals in respect of noise and vibration control continue to represent BAT. The remote location of the site also reduces any risk of pollution at sensitive receptors. We will not require a noise management plan for the installation but have the provision to require one if necessary under the standard permit condition for noise.</p> <p><b>Combustion emissions</b> Emissions from combustion processes have been previously screened out as insignificant, and we agree that the applicant's proposed techniques are BAT for the installation. The size of combustion plant actually in use remains low (&lt;5MWth) so they are unlikely to have a significant environmental impact. The permit will restrict the steam raising boilers to an average demand not exceeding 2.5 MWth as this is the maximum that the operator requires for their full increase in production to 3,200 tonnes/week.</p> <p><b>Effluent treatment plant emissions</b> Emissions from the effluent treatment plant cannot be screened out as insignificant. We have therefore assessed whether the proposed techniques are BAT:</p> <p>Table 4.46 Typical FDM waste water quality after treatment (FDM BREF, 2006):</p> <table border="1" data-bbox="493 1547 1302 1803"> <thead> <tr> <th>Parameter</th> <th>Concentration (mg/l)</th> </tr> </thead> <tbody> <tr> <td>BOD<sub>5</sub></td> <td>&lt;25</td> </tr> <tr> <td>COD</td> <td>&lt;125</td> </tr> <tr> <td>TSS</td> <td>&lt;50</td> </tr> <tr> <td>pH</td> <td>6 – 9</td> </tr> <tr> <td>Oil and grease</td> <td>&lt;10</td> </tr> <tr> <td>Total nitrogen</td> <td>&lt;10</td> </tr> <tr> <td>Total phosphorus</td> <td>&lt;5</td> </tr> </tbody> </table> <p>Due to the sensitive nature of the receiving watercourse, conditions are being imposed for which the appropriate emission limits are more stringent than those associated with the best available techniques as described in BAT conclusions. See 'Key Issues' for further detail.</p>	Parameter	Concentration (mg/l)	BOD <sub>5</sub>	<25	COD	<125	TSS	<50	pH	6 – 9	Oil and grease	<10	Total nitrogen	<10	Total phosphorus	<5	
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Aspect considered	Justification / Detail	Criteria met
		Yes
<b>The permit conditions</b>		
Updating permit conditions during consolidation.	<p>We have updated previous permit conditions to those in the new generic permit template as part of permit consolidation. The new conditions have the same meaning as those in the previous permit(s).</p> <p>The operator has agreed that the new conditions are acceptable.</p>	✓
Raw materials	<p>We have specified limits and controls on the use of raw materials and fuels.</p> <p>The boilers on site are kerosene fired so we have retained the requirement for the sulphur content of fuel oil to be a maximum of 0.1%.</p>	✓
Pre-operational conditions	<p>Based on the information in the application, we consider that we need to impose pre-operational conditions.</p> <p>The existing conditions regarding the use of wastewater for the purposes of irrigation are retained (PO1 &amp; PO2). A condition requiring the operator to update their EMS prior to the operation of the ETP at a higher volume has been added (PO3) as well as for them to notify us prior to each increase in production that will produce a greater volume of effluent (PO5).</p> <p>We have also included a condition requiring the operator to provide us with the findings of a hydraulic capacity assessment for the final effluent disposal main (PO4). See 'Key Issues' for further detail.</p>	✓
Improvement conditions	<p>Based on the information on the application, we consider that we need to impose improvement conditions.</p> <p>We have imposed improvement conditions to ensure that:</p> <ul style="list-style-type: none"> <li>➤ the permit contains the provision for actioning the findings of the Blagdon Study. (IC8) (See 'Key Issues' for further detail.)</li> <li>➤ the appropriate measures are in place to prevent fugitive emissions (from site drainage and containment). (IC9) This replaces a completed improvement condition and will ensure that any new storage vessels are suitably contained.</li> </ul>	✓

Aspect considered	Justification / Detail	Criteria met
		Yes
	<ul style="list-style-type: none"> <li>➤ appropriate measures are in place to ensure the efficient use of raw materials and water (specifically regarding water reuse/reduction). (IC10) This is a key concern for the Food &amp; Drink sector, which has high water usage.</li> <li>➤ the operator investigates options for the reduction of phosphates in their final effluent. (IC11) This is a WFD requirement.</li> </ul>	
Incorporating the application	<p>We have specified that the applicant must operate the permit in accordance with descriptions in the application, including all additional information received as part of the determination process.</p> <p>These descriptions are specified in the Operating Techniques table in the permit. They include information on compliance with BAT.</p> <p>As of 01/02/16 we no longer reference 'How to Comply'.</p>	✓
Emission limits	<p>We have decided that emission limits should be set for the parameters listed in the permit.</p> <p>It is considered that the numeric limits described below will prevent significant deterioration of receiving waters. We have imposed numeric limits because either a relevant environmental quality or operational standard requires this.</p> <ul style="list-style-type: none"> <li>- BOD 10 mg/l</li> <li>- Ammoniacal nitrogen 2 mg/l (95%ile) and 5 mg/l (absolute)</li> <li>- Suspended solids 20 mg/l</li> <li>- Orthophosphate 1 mg/l (annual average)</li> </ul> <p>See 'Key Issues' for further information.</p>	✓
Monitoring	<p>We have decided that monitoring should continue to be carried out for the parameters listed in the permit, using the methods detailed and to the frequencies specified.</p> <p>These monitoring requirements have been imposed in order to ensure that the operator has the information available to ensure that they are compliant with the</p>	✓

Aspect considered	Justification / Detail	Criteria met Yes
	<p>emission limit values (ELVs) imposed in order to protect the River Congresbury Yeo. If they are at risk of exceeding any ELVs they will be able to investigate the operation of the effluent treatment plant and resolve any issues. As such, we have introduced a requirement for the operator to monitor COD daily as a means for them to check that their BOD limit (monitored monthly by a third party) is not breached.</p> <p>Based on the information in the application we satisfied that the operator's techniques, personnel and equipment have either MCERTS certification or MCERTS accreditation as appropriate.</p>	
Reporting	<p>We have specified reporting in the permit.</p> <p>This remains as per the existing permit, with the addition of refrigerant usage (kg) as an annually reported performance parameter because it is of importance for the Food &amp; Drink sector.</p>	✓
<b>Operator Competence</b>		
Environment management system	<p>There is no known reason to consider that the operator will not have the management systems to enable it to comply with the permit conditions. The decision was taken in accordance with RGN 5 on Operator Competence.</p>	✓

## Annex 2: Consultation and web publicising responses

Summary of responses to consultation and web publication and the way in which we have taken these into account in the determination process. (Newspaper advertising is only carried out for certain application types, in line with our guidance.)

<i>Response received from</i>
Wessex Water
<i>Brief summary of issues raised</i>
<ul style="list-style-type: none"><li>• No assessment has yet been commissioned by Yeo Valley to consider the hydraulic impact of this proposed significant increase in discharge into Wessex Water's existing 225mm final effluent disposal main (FEDM), although we are now aware of their general plans to increase production over the next 7 – 10 years.</li><li>• The FEDM has limited available capacity to accept additional flows; additional flows will lead to an increased risk of surcharge and increased volumes of treated sewage effluent and storm lagoon discharges to Blagdon Lake from Ubley sewage treatment works.</li><li>• Wessex Water therefore requires further time to undertake suitable hydraulic appraisal, commissioned by the applicant, before stating our final position on a variation to the Environmental Permit.</li></ul>
<i>Summary of actions taken or show how this has been covered</i>
<p>We issued Yeo Valley with a Schedule 5 Notice requiring further information: <i>You must provide us with an assessment of the hydraulic capacity of the FEDM (carried out in conjunction with Wessex Water) and the environmental impacts from your proposed increased discharge volume.</i></p> <p>Wessex Water indicated that they can accept the first increase in discharge volume in February 2016 but need to carry out further work to assess additional increases.</p> <p>Due to the timescales involved, we have transferred the outstanding requirements from the Schedule 5 Notice to a Pre-Operational Condition in the permit variation.</p> <p>For full detail, see 'Key Issues' section on Pipe capacity.</p>

No response was received from

- North Somerset Council Environmental Protection
- Bristol City Council Planning Department
- Health & Safety Executive

We did not consider it necessary to consult with Bristol Water as their fish farm and abstractions are upstream of the discharge point so cannot be affected by the emission of treated process effluent.